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Is Thrombus Aspiration the Appropriate “Remedy”?

The recently published substudy of the REMEDIA (Randomized Evaluation of the Effect of Mechanical Reduction of Distal Embolization by Thrombus-Aspiration in Primary and Rescue Angioplasty) trial by Galiuto et al. (1) raises a number of important issues regarding routine use of thrombectomy devices in the setting of acute ST-segment elevation myocardial infarction. To date, results from recently published larger randomized studies of distal protection have shown a neutral effect (2–4). Furthermore, relevant results were obtained in 2 of these studies regarding an associated increase in infarct size (3,4).

The original REMEDIA trial (5), however, showed improved myocardial blush grade and ST-segment resolution in the thrombectomy arm. The Galiuto et al. (1) substudy of this trial further evaluates potential mechanisms behind this finding. In this substudy, patients were evaluated with myocardial contrast echocardiography (MCE) at 24 h, 1 week, and 6 months, with consistent improvements seen over these time periods, not only in microvascular but also myocardial function. These results, though promising, should be viewed in light of not only the previously published neutral studies, but also the PROMISE (Protection Devices in PCI Treatment of Myocardial Infarction for Salvage of Endangered Myocardium) study (6).

Utilizing Doppler Flo-wire and cardiac magnetic resonance imaging evaluation, the PROMISE study had neutral findings regarding microvascular function and infarct size. Differences

between the Galiuto et al. (1) and PROMISE (6) studies are important to note, particularly when evaluating their different conclusions. It is possible that the microvascular circulation following primary angioplasty remains dysfunctional in the short term but begins to normalize over 12 to 24 h. This would explain both the immediate postangioplasty neutral result of the Doppler Flo-wire study and positive results of the MCE evaluation over time. Furthermore, it is possible that initial passage of a distal protection device (i.e., filter wire or distal balloon occlusion device) may result in distal embolization, a process that might be reduced with isolated thrombectomy catheter use.

However, the major concern relates to the Galiuto et al. (1) study being potentially underpowered. As no power calculations were provided in this trial, we are unable to assess whether 50 patients is appropriate; of note, the negative PROMISE study randomized 4 times more subjects.

Although the findings of the small Galiuto et al. (1) study are promising, the weight of evidence of larger randomized trials supports a neutral effect of distal protection on both microvascular and myocardial function. Further evaluation of such devices is imperative, particularly in selected cases such as those with large angiographic thrombus burden.

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